



Control-/Data Plane for N6 Traffic Steering

(<https://www.ietf.org/id/draft-fattore-dmm-n6-trafficsteering-01.txt>)

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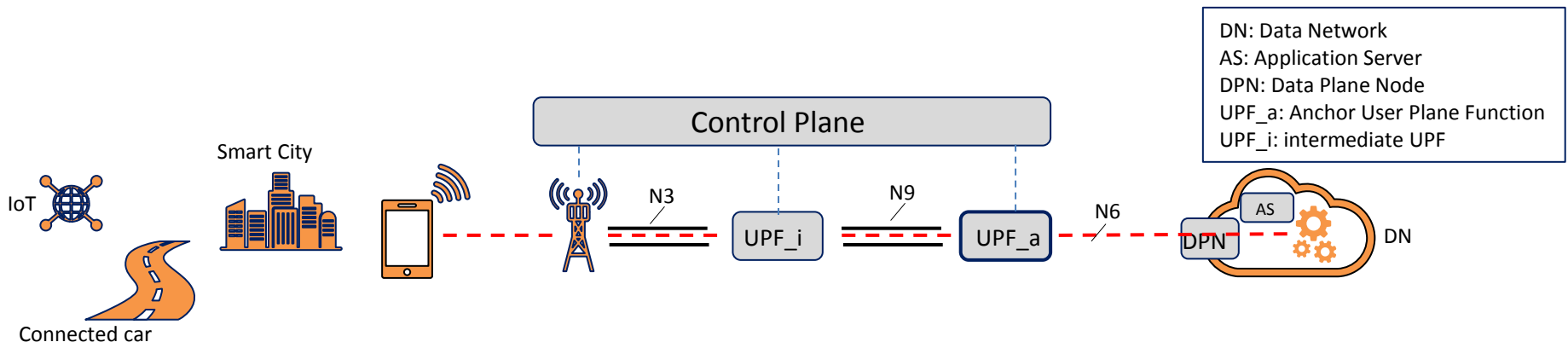
IETF#104

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Prague

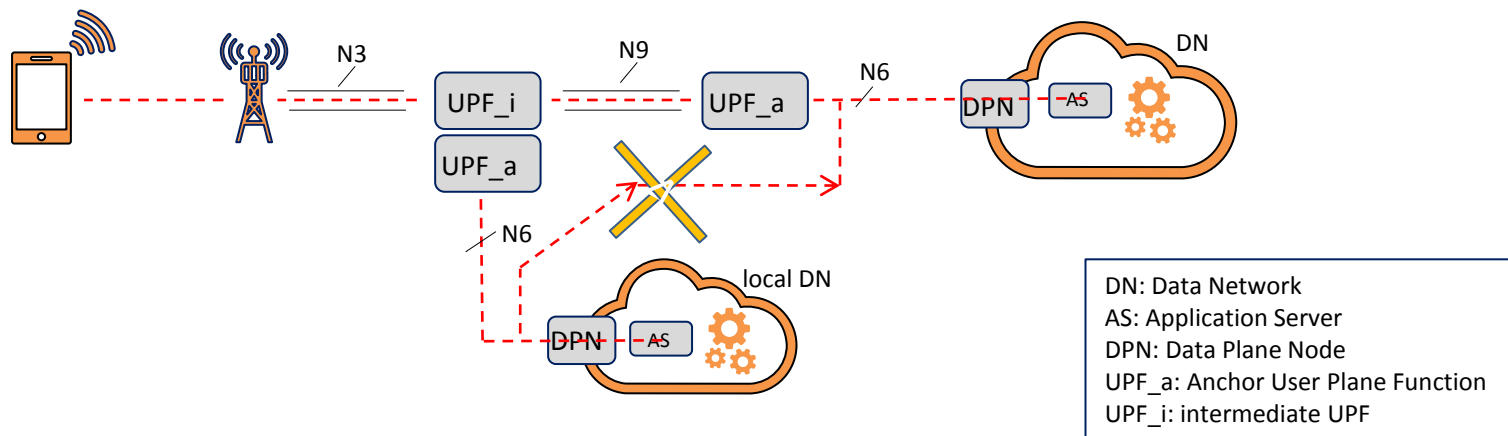
Background & Motivation

- Various drafts published in the context of data plane protocol solutions for the 3GPP mobile architecture's N9 interface
- Routing of IP PDUs assumed on N6 interface
- Future support of industry verticals:
Demand for more flexible deployment options (→ customization) and traffic steering
 - Mobile device applications connect to multiple distributed data networks (central, edge)
- This draft:
 - Enable de-coupling of anchoring UPF(s) from data network(s) and UPF distribution
 - Enable enforcement of traffic treatment policies on N6 interface for complete end-to-end policy control



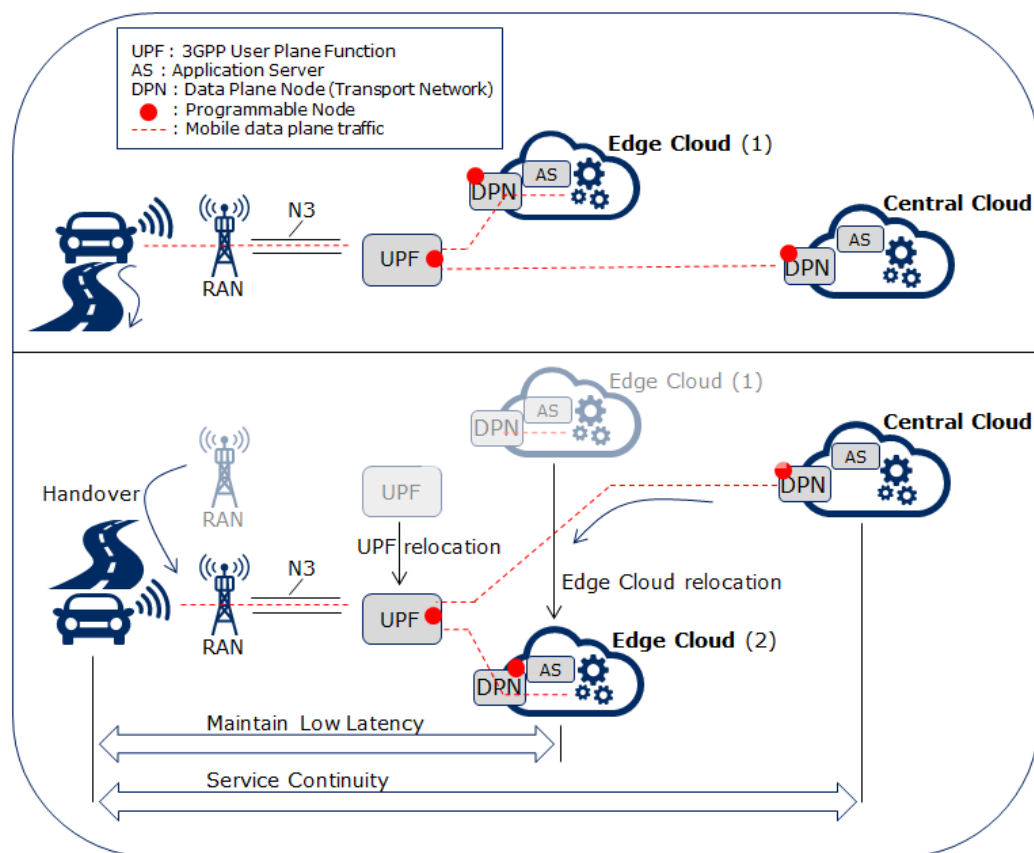
Use Cases and Problem Statement (1/2)

- Mobile applications associated with services in multiple data networks
- Mobile control plane selects and configures main anchor UPF and complementary anchor UPF(s) to access multiple distributed data networks
 - UL/DL traffic treatment on UPFs configured by control plane
 - DL traffic from data network(s) to UPF(s) may be ambiguous (not aligned with mobile core)
- Control routing of DL traffic from data networks to the most suitable anchor UPF
- Need to enforce traffic treatment rules on data network side



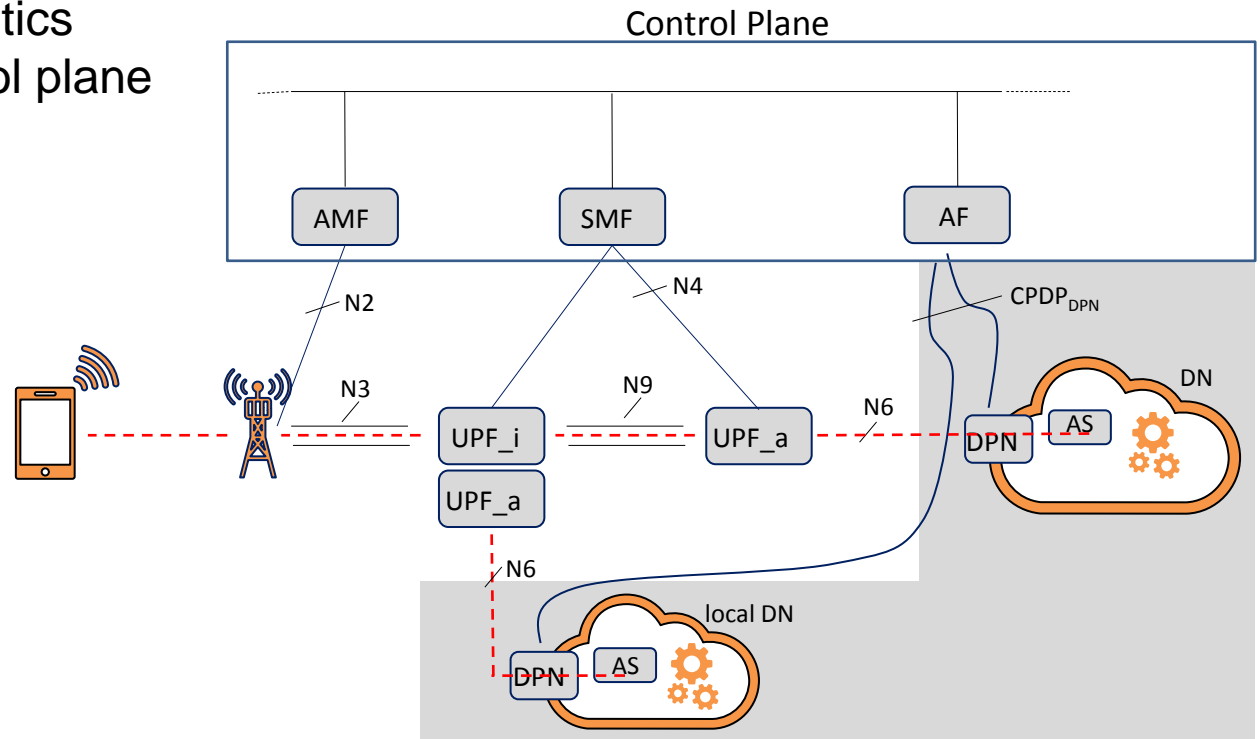
Use Cases and Problem Statement (2/2)

- Edge deployment of anchor UPF, e.g. to enable low-latency service access
- Re-configuration of the data plane to maintain required service level
- Re-selection and configuration of new anchor UPF
(also refer to MFA draft <https://www.ietf.org/id/draft-gundavelli-dmm-mfa-01.txt>)
- Update data plane on N6 to steer traffic to new UPF
 - Use of SRv6, tunnel, ID-LOC, ..



Scope of this draft

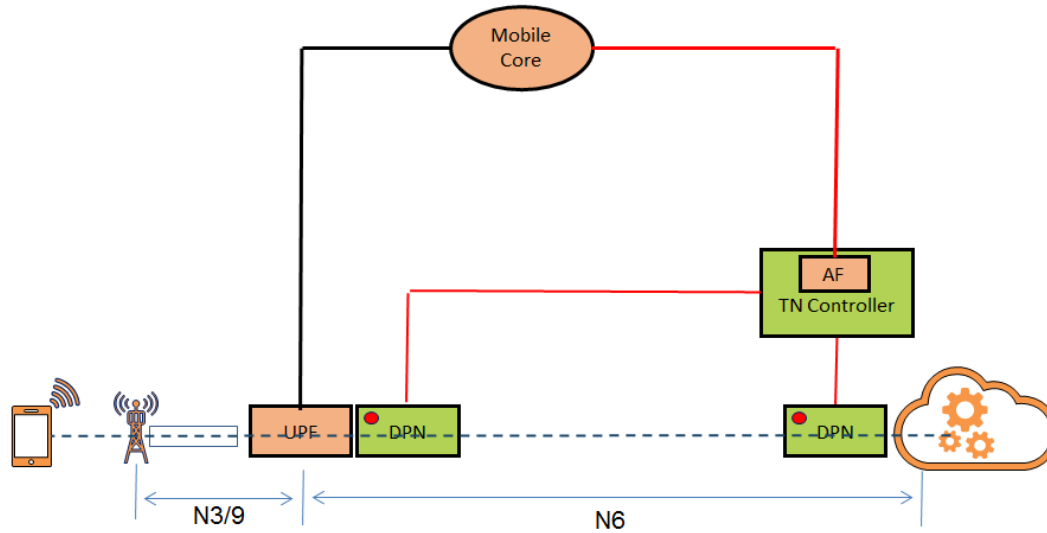
- Use cases and **operation** of de-centralized mobile data plane
 - Flexible deployment and re-configuration of anchor UPF(s)
- **Semantics** and **data models** for DPN traffic treatment policies (UL, DL) on N6
 - Enforcement at data network(s) (DPN/AS) for DL traffic and at anchor UPF for UL traffic
 - Use of SRv6, ID-LOC, LOC re-write, .. policies for traffic steering
- **Architecture** to bind end-to-end data plane control to Mobile Control Plane and required semantics to/from 3GPP control plane



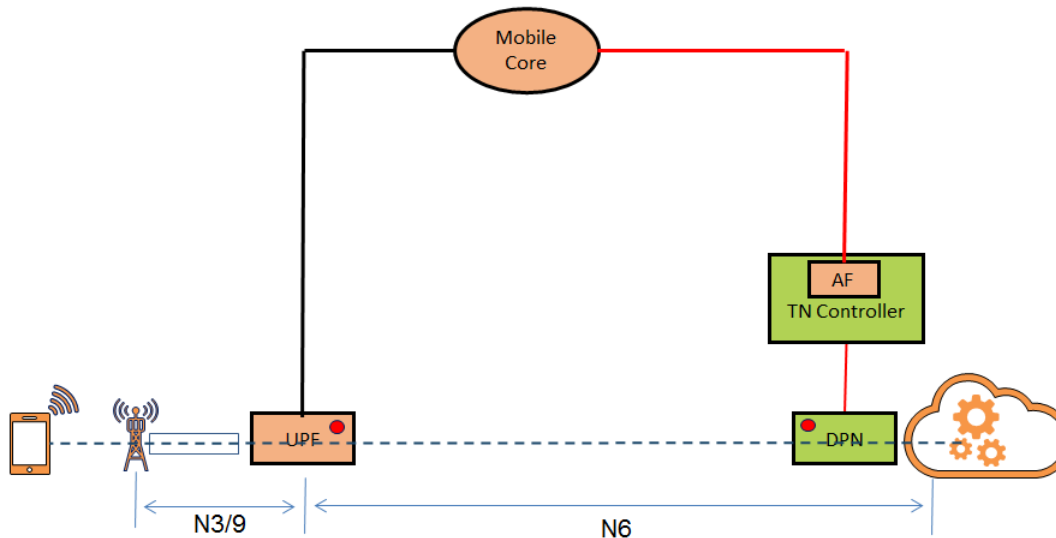
Status

- Draft focus has been discussed before IETF103. Interest and valuable feedback received.
- First version published e.o. Sept 2018. Discussed at IETF103 – valuable feedback
- More discussion and feedback after IETF103, in particular about applicability to distributed edge clouds and MEC
- Draft updated before IETF104
 - Deployment and operational aspects
 - Supports data plane *loose coupling* and *tight coupling* options
 - N6 rules on UPF-side received either through 5G Control Plane or from TN Controller
 - More energy needed to elaborate on a mature info model

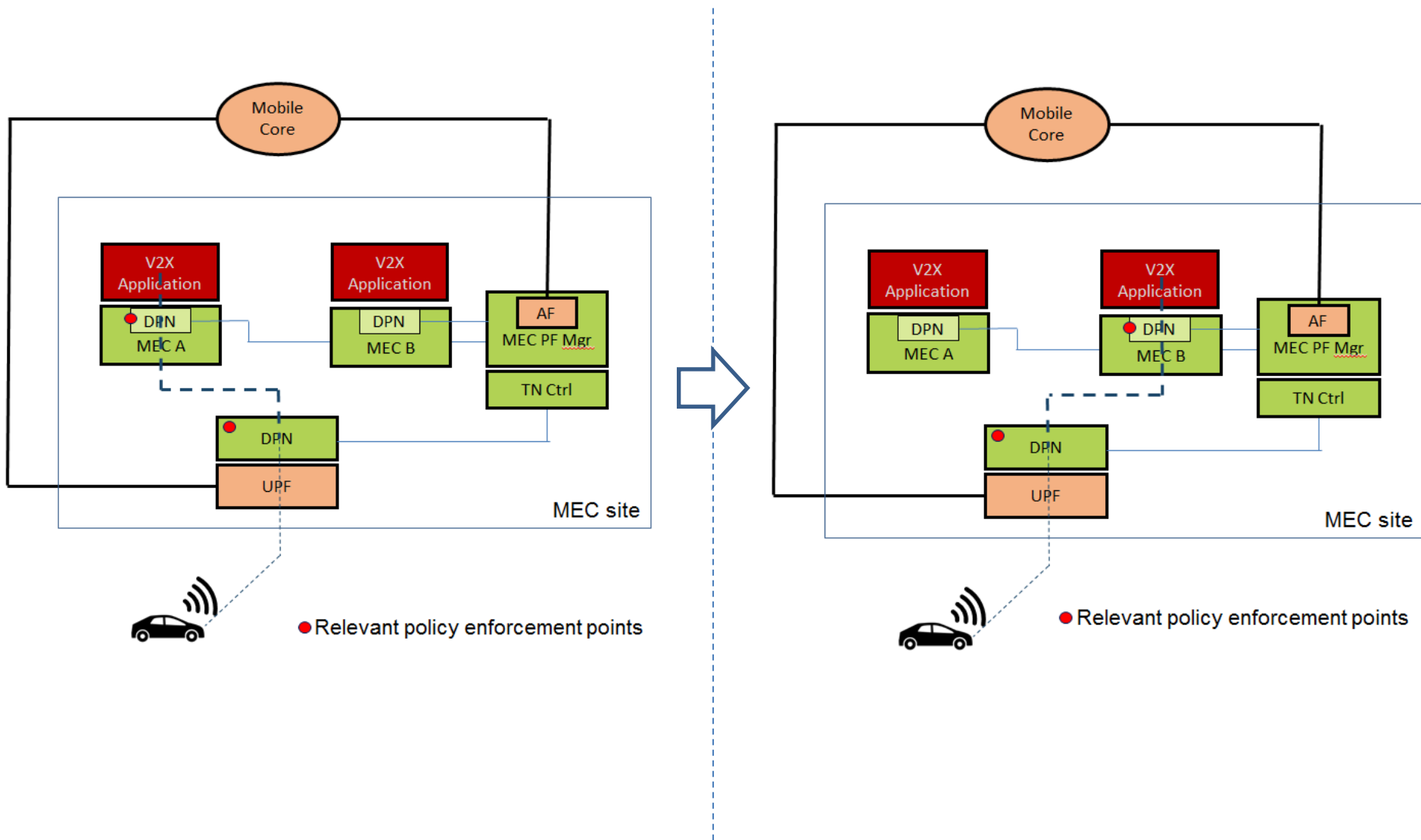
N6 PEPs – Loose coupling vs tight coupling



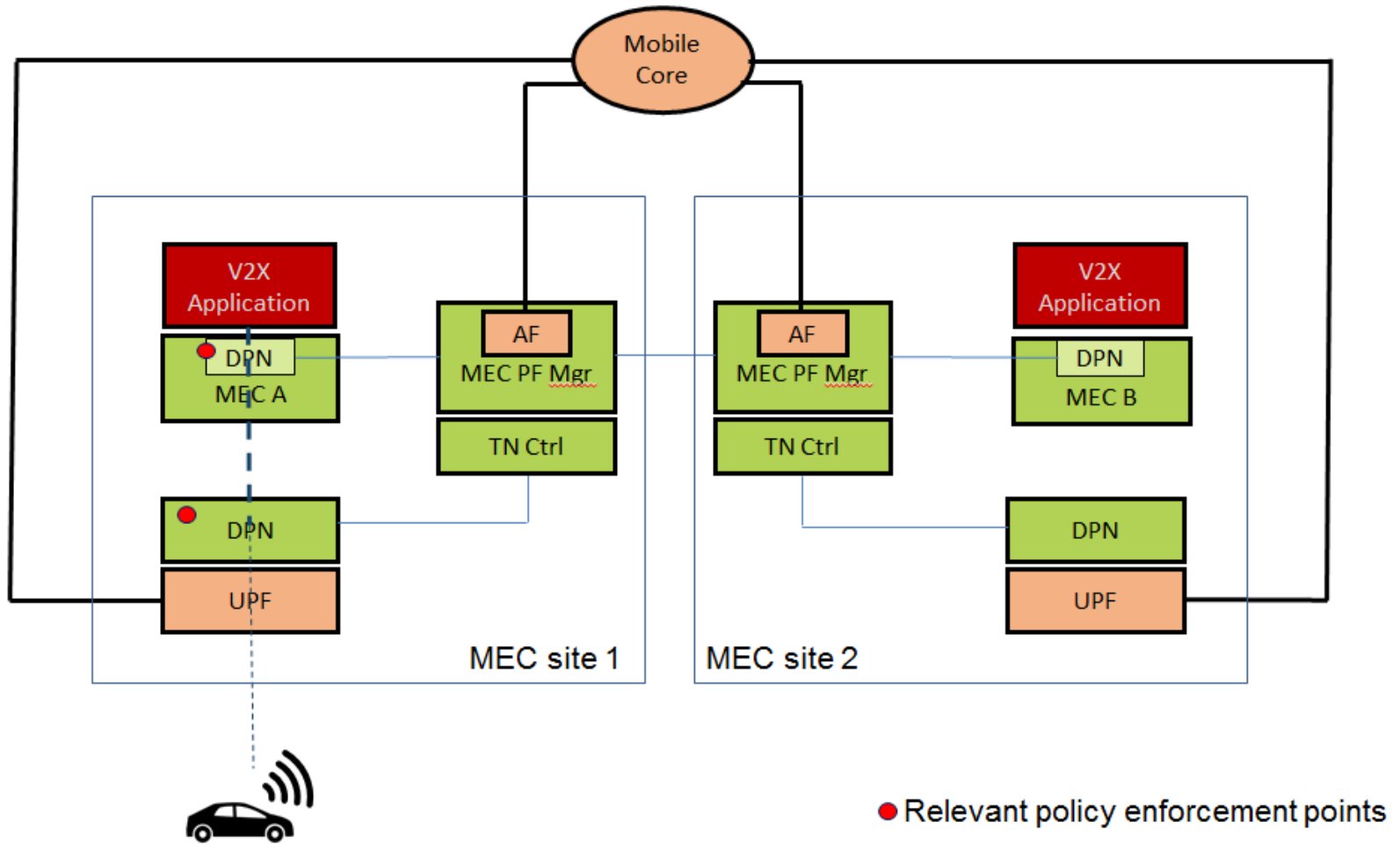
● Relevant policy enforcement points



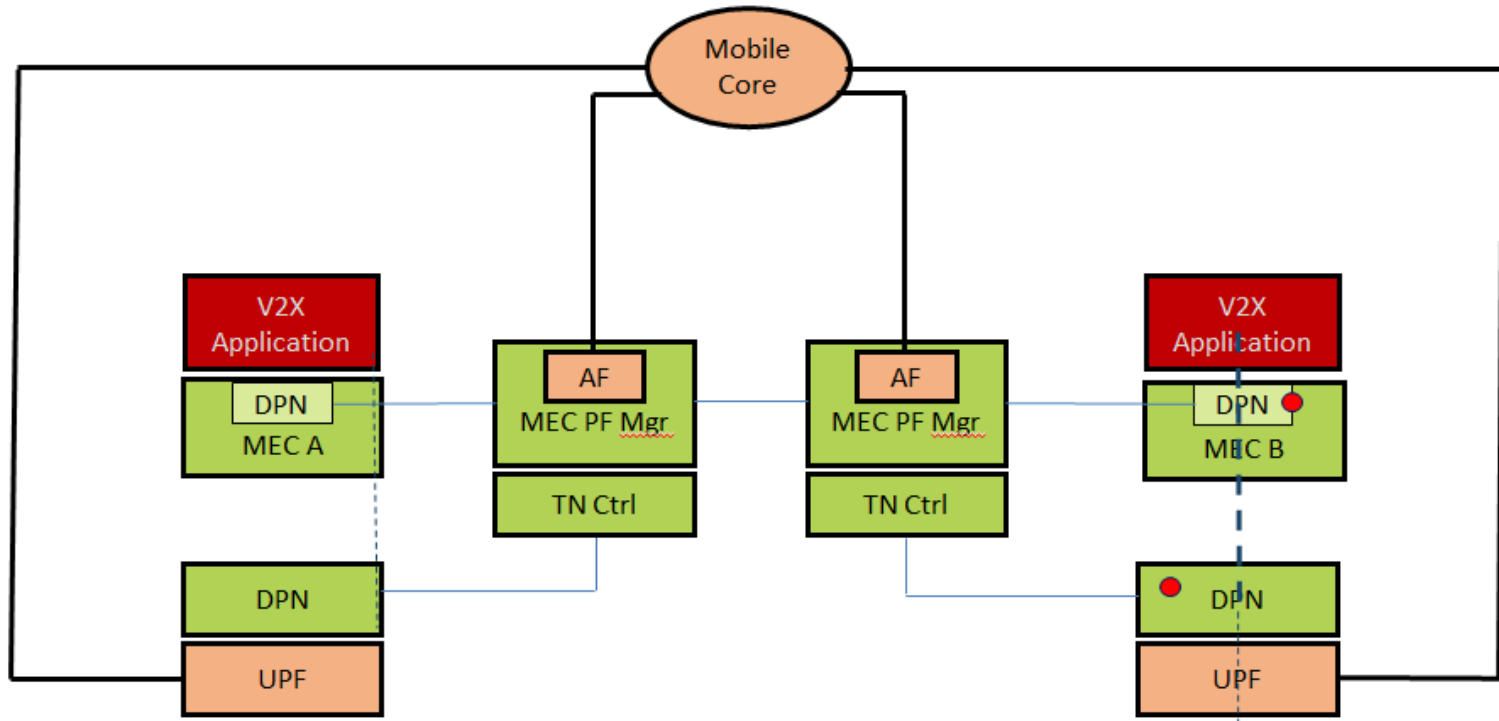
MEC – 5GC deployment – site local operation



MEC – 5GC deployment – inter-site operation (1/3)



MEC – 5GC deployment – inter-site operation (3/3)



● Relevant policy enforcement points



Next

- Revise document structure to focus on the identified scope and objectives

- Converge on a suitable notation
 - Operational aspects
 - Semantics / models

- Target clean update by June 2019

- WG interested in adopting this work?

- Liaise this work with 3GPP / ETSI MEC ?